




 <i>exchange requirements for the "Basic HandOver to Facility Management"</i>						<i>IFC Model View Definition</i>	
Object Type				Export	Import		
Attribute Groups							
Property	Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding
Meta data							
<i>Exchange file</i>						HEADER section	
Exchange purpose	Designation of the exchange file to be "HandOver to Facility Management"	ViewDefinition [CoordinationView, FMHandOverView] -- system to assign the standard view definition name	[COBIE2]: defined by external specification	M		file_description(('ViewDefinition [CoordinationView, FMHandOverView]', '2;1');	
Author	Name of the creator of the FM HandOver data set	user setting - application need to provide UI	[COBIE2]: reqd - worksheet.Created.By	M		file_name with field author	
Company	Company name of the Author	user setting - application need to provide UI	[COBIE2]: reqd - Contact.Company	M		file_name with field organization	
Originating application	Name of the software application that created the data set	system setting by software vendor, shall be specific, i.e. including version information	[COBIE2]: reqd if created by external system worksheet.ExtSystem	M		file_name with field originating_system	
Date of creation	Time stamp of the creation time	2008-04-12T15:27:46	[COBIE2]: reqd - worksheet.CreatedOn	M		file_name with field time_stamp	
Project							
		there has to be exactly one project object in the exchange file	[COBIE2]: project information required only if created by external system. See Facility worksheet			IfcProject	GSC-239
<i>Project Attributes</i>							VBL-296
Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f25, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Facility.ExtProjectIdentifier	M		IfcProject.GlobalId	VBL-170
Number (or ID)	User assigned (short) name or number	delivery contracts may demand a certain naming convention	[COBIE2]: reqd - Facility.ProjectName	M		IfcProject.Name	GSC-241
Name	User assigned name (full name)	for informational purposes only	[COBIE2]: optional - put in Attribute worksheet if used	M		IfcProject.LongName	BSA-506
<i>Description</i>	<i>User assigned optional description</i>	<i>NOT USED,, user data not required for export</i>	[General]: Optional, not checked	-		IfcProject.Description	GSC-242
<i>Phase</i>	<i>Design stage</i>	<i>NOT USED, conceptual design, detailed design, ..., for informational purposes only</i>	[COBIE2]: optional - put in Attribute worksheet if used	-		IfcProject.Phase	GSC-243
<i>Project units</i>							VBL-359
Length unit	Default length unit for all length measures in the data set	[m], [mm], [inch], [feet]	[COBIE2]: reqd - Facility.LinearUnit	M		IfcProject.UnitsInContext (IfcUnitAssignment) with IfcSIUnit.Name = METRE	GSC-246
Area unit	Default area unit for all length measures in the data set	[m²], [square feet]	[COBIE2]: reqd - Facility.AreaUnit and Facility.AreaMeasurement	M		IfcProject.UnitsInContext (IfcUnitAssignment) with IfcSIUnit.Name = SQUARE METRE	GSC-245
Volume unit	Default volume unit for all length measures in the data set	[m³], [cubic feet]	[COBIE2]: reqd - Faciilty.VolumeUnit	M		IfcProject.UnitsInContext (IfcUnitAssignment) with IfcSIUnit.Name = CUBIC METRE	GSC-247
<i>Project decomposition</i>							GSC-240
Site contained in Project	Link to the top-level node of the spatial structure, being a site	either the project has a link to site, or to the building, but not both in parallel	[General]: having a site object is optional in Basic FM HandOver [FM-10]: one side allowed [COBIE2]: one site allowed per COBie2 file	M/O		IfcRelAggregates with RelatingObject = IfcSite	GSC-041
Building contained in Project	Link to the top-level node of the spatial structure, being a building	either the project has a link to site, or to the building, but not both in parallel	[General]: has to be given, if there is no site [FM-10]: one or several buildings allowed [COBIE2]: one building allowed per COBie2 file	M/O		IfcRelAggregates with RelatingObject = IfcBuilding	GSC-083


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Property									
Definitions and notes									
Examples and further explanations									
Comments									
Site				there can be zero or one site object in the exchange file	[COBIE2]: site information required only if created by external system. See Facility worksheet			IfcSite	GSC-031
	Site Attributes								(GSC-033)
		Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f25, has to be maintained by the application (e.g. for re-export)	[COBIE2]: reqd if created by external system Facility.ExtSiteIdentifier	M		IfcSite.GlobalId	VBL-170
		Number (or ID)	User assigned unique number or key of the site (short name), If possible should follow coding rules of used FM guidelines		[COBIE2]: reqd - Facility.SiteName	M		IfcSite.Name	GSC-034
		Name	User assigned name (long name)		[COBIE2]: optional - put in Attribute worksheet if used	M		IfcSite.LongName	BSA-508
		Description	User assigned optional description	not required for export	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcSite.Description	GSC-035
		Longitude	Geo location	(not required for export) geographic longitude in geodetic system WGS84, e.g. Chicago Harbor Light -87.35.40 ("-" = W)	[General]: not supported by most alphanumeric CAFM applications - but will be important in future for GIS integration [FM-10]: optional, not checked [COBIE2]: optional - put in Attribute worksheet if used	-		IfcSite.Longitude	VBL-312
		Latitude	Geo location	(not required for export) geographic latitude in geodetic system WGS84, e.g. Chicago Harbor Light 41.53.30 ("+" = N)	[General]: not supported by most alphanumeric CAFM applications - but will be important in future for GIS integration [FM-10]: optional, not checked [COBIE2]: optional - put in Attribute worksheet if used	-		IfcSite.Latitude	VBL-313
		Elevation	Site height datum	(not required for export) elevation above the height datum	[FM-10]: optional, not checked [COBIE2]: optional - put in Attribute worksheet if used	-		IfcSite.RefElevation	VBL-314
	Site Address			REQUIRED (if there is no building address)					GSC-032
		Address	Address lines	depending on local usage, street number, street name, etc.	[General]: to be used as default (i.e. if there are no specific building address data) [COBIE2]: n/a	M/O		IfcSite.SiteAddress.AddressLines	(incl.)
		City	Town or city name		[COBIE2]: n/a	M/O		IfcSite.SiteAddress.Town	(incl.)
		State	State, Region, or "Länder"	optional in many countries	[COBIE2]: n/a	M/O		IfcSite.SiteAddress.Region	(incl.)
		Zip	Postal code		[COBIE2]: n/a	M/O		IfcSite.SiteAddress.PostalCode	(incl.)
	Site Classification								GSC-037
		Classification	Site Classification	NOT used for Basic FM HandOver View, requires to specify a classification system	[General]: In particular interesting for data exchange between CAFM inventory data [FM-10]: optional, not checked [COBIE2]: n/a	-		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
		Classification Item Key	Key of classification item within the classification system		[FM-10]: optional, not checked [COBIE2]: n/a	-		IfcClassificationReference.ItemReference	(incl.)
		Classification Item Name	Clear name of the classification item		[FM-10]: optional, not checked [COBIE2]: n/a	-		IfcClassificationReference.Name	(incl.)


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Attribute Groups		Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding	
Property									
		<i>Classification System Name</i>	Name of the classification system		[FM-10]: optional, not checked [COBIE2]: n/a	-		IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl.)
		<i>Classification System ID</i>	Identifyer of the classification system		[FM-10]: optional, not checked [COBIE2]: n/a	-		IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	
		Site Base Quantities						IfcElementQuantity (through relationship IfcRelDefinedByProperties)	(BSA-438)
		<i>Site Perimeter</i>	Total perimeter of the side	NOT used for Basic FM HandOver View	[COBIE2]: n/a	-		IfcQuantityLength.Name="GrossPerimeter"	BSA-248
		<i>Site Gross Land Area</i>	Total area of the building site, as projected to the horizontal plane.	NOT used for "Basic FM HandOver View"	[FM-10]: Gesamtfläche Liegenschaft [COBIE2]: n/a	-		IfcQuantityArea.Name="GrossArea"	BSA-250
		Site Properties						IfcPropertySet (through relationship IfcRelDefinedByProperties)	GSC-038
		<i>Site Common Properties</i>	Properties that are specified in the standard property definitions (or a relevant subset of) as defined in IFC site common properties	NOT used for "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined outside of the standard properties [FM-10]: n/a [COBIE2]: n/a	-		IfcPropertySet with Name = "Pset_SiteCommon"	GSC-039
		<i>Site Catalogue properties</i>	Property that is specified by an external catalogue. Names are valid in the local context (e.g. by country, jurisdiction, building owner), only applicable in local context by additional agreements	NOT used for international "Basic FM HandOver View" The German BRF (FM guideline) defines several properties such as area ratios ("GFZ", "GRZ") and administrative data ("Gemarkungsnummer", "Gemarkungsname", "Flur", ...)	[General]: In particular interesting for data exchange between CAFM [FM-10]: local property set agreement for German BfR Gbestand [COBIE2]: n/a	-		IfcPropertySet with Name = /* to be decided in local context */ and locally defined properties	GSC-040
		<i>e.g. "tatsächliche GRZ"</i>	"Grundflächenzahl" Ratio between the buildable area and the total area of a site	NOT used for international "Basic FM HandOver View"	[General]: In particular interesting for data exchange between CAFM [FM-10]: requested is the correct name, the classification via "description field" not used for exchange from CAD/BIM [COBIE2]: n/a	-		IfcPropertySingleValue .Name="tatsächliche GRZ", .Description="D_Merkmalkatalog_BFR ZL008.11.2.102" Value=0.65	(incl.)
		Spatial Decomposition							GSC-042
		Site contained in Project	"backlink" to the project as highest node in the project structure		[General]: one project object allowed	M		IfcRelAggregates with RelatingObject = IfcProject	GSC-041
		Building contained in Site	Reference to all buildings that are situated on this site.		[FM-10]: one or several buildings allowed [COBIE2]: one building allowed per COBie2 file	M		IfcRelAggregates with RelatedObject = IfcBuilding	VBL-504
		Site contained in Site	NOT ALLOWED Needed in case a site is split into smaller parts.	NOT allowed for "Basic FM HandOver View"	[General]: used for project structures, where a site has partial sites, not included in Architectural HandOver [FM-10]: one site is allowed per ifc file (same as in the coordination view) [COBIE2]: one site allowed per COBie2 file	N		IfcRelAggregates with RelatedObject = IfcSite	GSC-043

 buildingSMART <small>FM Information for Microscope Users</small>					exchange requirements for the "Basic HandOver to Facility Management"					IFC Model View Definition	
Object Type								Export	Import		
Attribute Groups		Definitions and notes		Examples and further explanations		Comments					
Property										IFC Model Representation	MVD binding
Building				there can be one or several building objects in the exchange file	[COBIE2]: building information identified in Facility worksheet					IfcBuilding	GSC-287
	Building Attributes										GSC-045
		Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f24, has to be maintained by the application (e.g. for re-export)	[General]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Facility.ExtFacilityIdentifier			M	x	IfcBuilding.GlobalId	VBL-170
		Number (or ID)	Unique number or key of the building (short name), If possible should follow coding rules of used FM guidelines.		[FM-10]: required [COBIE2]: reqd - Facility.ProjectName			M		IfcBuilding.Name	GSC-075
		Name	Designer assigned name (long name)		[FM-10]: required [COBIE2]: optional - put in Attribute worksheet if used			M		IfcBuilding.LongName	GSC-076
		Description	OPTIONAL Designer assigned description	not required for export	[COBIE2]: optional - Facility.Description			O		IfcBuilding.Description	GSC-077
	Building Address			REQUIRED ONLY (if there is no site address)							GSC-047
		Address	Address lines	depending on local usage, street number, street name, etc.	[General]: to be used, if there is no address assigned to the site (or if no site is present in the exchange file) [COBIE2]: n/a			O		IfcBuilding.BuildingAddress.AddressLines	(incl)
		City	Town or city name		[COBIE2]: n/a			O		IfcBuilding.BuildingAddress.Town	(incl)
		State	State, Region, or "Länder"	optional in many countries	[COBIE2]: n/a			O		IfcBuilding.BuildingAddress.Region	(incl)
		Zip	Postal code		[COBIE2]: n/a			O		IfcBuilding.BuildingAddress.PostalCode	(incl)
	Building Classification										GSC-049
		Classification	Building Classification	OPTIONAL for "Basic FM HandOver View", requires to specify a classification system	[General]: In particular interesting for data exchange between CAFM [FM-10]: not required for BIM/CAD (only for CAFM to CAFM exchange) [COBIE2]: reqd - Facility.Category			O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
		Classification Item Key	Key of classification item within the classification system		[COBIE2]: reqd - Facility.Category first value of delimited list			O		IfcClassificationReference.ItemReference	(incl)
		Classification Item Name	Clear name of the classification item		[COBIE2]: reqd - Facility.Category second value of delimited list			O		IfcClassificationReference.Name	(incl)
		Classification Name	Name of the classification system		[COBIE2]: n/a			O		IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
		Classification System ID	Identifyer of the classification system		[COBIE2]: implicit: regional specification (Omniclass Table 11 in NA)			O		IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
	Building Base Quantities			NOT used for "Basic FM HandOver View"						IfcElementQuantity (through relationship IfcRelDefinedByProperties)	BSA-440
		Height	total height of the building		[General]: for Architectural (CAD) HandOver only the stories should have height, it should be summed up after import [COBIE2]: n/a			-		IfcQuantityLength.Name="Height"	BSA-473
		Net Area – All Spaces	sum of all usable space areas		[General]: for Architectural (CAD) HandOver only the spaces should have area, it should be summed up after import [COBIE2]: n/a			-		IfcQuantityArea.Name="NetArea"	GSC-080

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Property									
		Gross Area – All Stories	sum of all gross floor areas		<i>[General]: for Architectural (CAD) HandOver only the spaces should have area, it should be summed up after import</i> <i>[COBIE2]: n/a</i>	-		IfcQuantityArea.Name="GrossArea"	GSC-081
		Gross Volume	gross volume of all areas enclosed by the building		<i>[General]: for Architectural (CAD) HandOver only the spaces should have volumes, it should be summed up after import</i> <i>[COBIE2]: n/a</i>	-		IfcQuantityArea.Name="GrossVolume"	GSC-082
Building Properties								IfcPropertySet (through relationship IfcRelDefinedByProperties)	GSC-051
		Building Common Properties	Properties that are specified in the standard property definitions (or a relevant subset of)		<i>[General]: relevant subset of required properties need to be defined out of the standard properties</i>	O		IfcPropertySet with Name = "Pset_BuildingCommon"	GSC-084
		Building age	Year of construction	OPTIONAL for "Basic FM HandOver View"	<i>[COBIE2]: optional - put in Attribute worksheet if used</i>	O		IfcPropertySingleValue (Pset_BuildingCommon, YearOfConstruction)	GSC-089
		Landmark status	landmark or not	OPTIONAL for "Basic FM HandOver View"	<i>[COBIE2]: optional - put in Attribute worksheet if used</i>	O		IfcPropertySingleValue (Pset_BuildingCommon, IsLandmarked)	GSC-109
		Building Catalogue Properties	Property that is specified by an external catalogue.	The German BRF (FM guideline) defines several properties such as area ratios ("NF", "BGF")	<i>[General]: In particular interesting for data exchange between CAFM [FM-10]: not required for BIM/CAD (only for CAFM to CAFM exchange)</i>	-		IfcPropertySet with Name = /* to be decided in local context */	GSC-085
		Last refurbishment	Year of last refurbishment	NOT used for international "Basic FM HandOver View", may be added in local adaptations	<i>[FM-10]: not required for BIM/CAD (only for CAFM to CAFM exchange)</i> <i>[COBIE2]: optional - put in Attribute worksheet if used</i>	-		IfcPropertySingleValue .Name="letzte Instanthaltung", .Description="D_Merkmalkatalog_BFR ZB001.14..101" Value=1982	GSC-046
Spatial Decomposition				A building can only be contained in a project, a site, or another building, however the last is disallowed within the "Basic FM HandOver View"					GSC-042
		Building contained in Project	"backlink" to the project or site as the higher node in the project structure	either the building has a link to project (if there is no site in the dataset), or to the building, but not both in parallel	<i>[COBIE2]: one project allowed per COBie2 file</i>	M/O		IfcRelAggregates with .RelatingObject = IfcProject and .RelatedObjects = [SELF, other buildings]	GSC-083
		Building contained in Site	either contained in a site, or if no site is available, directly in the project	either the building has a link to site (if there is a site in the dataset), or to the project, but not both in parallel	<i>[COBIE2]: one building allowed per COBie2 file</i>	M/O		IfcRelAggregates with .RelatingObject = IfcSite and .RelatedObjects = [SELF, other buildings]	GSC-086
		Building contained in Building	NOT ALLOWED	Needed in case a building is split into wings or other sections - define each wing as a building on site.		N		IfcRelAggregates with RelatedObject = IfcBuilding	GSC-087
		Building Storey contained in Building	mandatory in the "Architectural HandOver" view, there has to be at least one storey		<i>[COBIE2]: one or many floors allowed in COBie2</i>	M		IfcRelAggregates with RelatedObject = IfcBuildingStorey	GSC-088


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Property							
Definitions and notes							
Examples and further explanations							
Comments							
Building Storey							IfcBuildingStorey
							GSC-090
Building Storey Attributes							
							GSC-091
	Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f23, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Floor.ExtIdentifier	M		IfcBuildingStorey.GlobalId
							VBL-170
	Number (or ID)	Unique number or key of the building (short name), If possible should follow coding rules of used FM guidelines.		[FM-10]: required, short name or number [COBIE2]: n/a	M		IfcBuildingStorey.Name
							GSC-110
	Name	Designer assigned name (long name)		[FM-10]: optional [COBIE2]: reqd - Floor.Name	M		IfcBuildingStorey.LongName
							GSC-119
	Description	OPTIONAL Designer assigned description	not required for export	[COBIE2]: optional - Floor.Description	O		IfcBuildingStorey.Description
							GSC-112
	Elevation	Building Story datum (relative to building)	height difference to the building height, e.g. +2,80 being 2,80 m above the 0,00 reference point for the building	[FM-10]: required as "Höhenkote" [COBIE2]: optional - Floor.Elevation	M		IfcBuildingStorey.Elevation
							GSC-092
Building Storey Base Quantities							IfcElementQuantity (through relationship IfcRelDefinedByProperties)
							BSA-442
	Net Height	Height of the story from the top of the slab to the bottom of the ceiling		[COBIE2]: optional - put in Attribute worksheet if used	M		IfcQuantityLength.Name="NetHeight"
							GSC-095
	Storey Height	Height of the story from the top of the slab below to the bottom of the slab above		[COBIE2]: optional - Floor.Height	M		IfcQuantityLength.Name="GrossHeight"
							BSA-462
	Net Area – all spaces	sum of all usable areas of spaces in that storey		[FM-10]: for Basic FM HandOver View" only the spaces should have areas, it should be summed up after import [COBIE2]: n/a	-		IfcQuantityArea .Name="NetArea"
							GSC-097
	Gross Area – all spaces	sum of all gross floor area of spaces in that storey		[FM-10]: for Basic FM HandOver View" only the spaces should have areas, it should be summed up after import [COBIE2]: n/a	-		IfcQuantityArea .Name="GrossArea"
							GSC-098
	Net Volume – all spaces	net volume of all areas enclosed by the building storey		[FM-10]: for Basic FM HandOver View" only the spaces should have volumes, it should be summed up after import [COBIE2]: n/a	-		IfcQuantityVolume.Name="NetVolume"
							GSC-099
	Gross Volume – all spaces	gross volume of all areas enclosed by the building storey		[FM-10]: for Basic FM HandOver View" only the spaces should have volumes, it should be summed up after import [COBIE2]: n/a	-		IfcQuantityVolume.Name="GrossVolume"
							BSA-265
Building Storey Classification							
							GSC-101
	Classification	NOT APPLICABLE Building storey classification	NOT used for "Basic FM HandOver View", requires to specify a classification system for stories	[General]: In particular interesting for data exchange between CAFM	-		IfcClassificationReference (through relationship IfcRelAssociatesClassification)
							GSC-036
	Classification Item Key	NOT APPLICABLE Key of classification item within the classification system		[COBIE2]: reqd - Floor.Category = floor, roof, external	-		IfcClassificationReference.ItemReference
							(incl)
	Classification Item Name	NOT APPLICABLE Clear name of the classification item		[COBIE2]: n/a	-		IfcClassificationReference.Name
							(incl)
	Classification System Name	NOT APPLICABLE Name of the classification system		[COBIE2]: n/a	-		IfcClassification.Name (through IfcClassificationReference.ReferencedSource)
							(incl)


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		Classification System ID	NOT APPLICABLE Identifier of the classification system		[COBIE2]: n/a	-		IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
Building Storey Properties								IfcPropertySet (through relationship IfcRelDefinedByProperties)	GSC-102
		Building Storey Common Properties	NOT APPLICABLE Properties that are specified in the standard property definitions (or a relevant subset of)	NOT used for international "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: required COBie2 properties are identified for every Floor in the COBie2 file	-		IfcPropertySet with Name = "Pset_BuildingStoryCommon"	GSC-103
		Building Storey Catalogue Properties	NOT APPLICABLE Properties that are specified according to an external catalogue.		[General]: In particular interesting for data exchange between CAFM [COBIE2]: n/a	-		IfcPropertySet with Name = /* to be decided in local context */	GSC-108
		Heatable Area	NOT APPLICABLE heated area of the storey	NOT used for international "Basic FM HandOver View", may be added in local adaptations	[FM-10]: not required for BIM/CAD (only for CAFM to CAFM exchange) [COBIE2]: optional - put in Attribute worksheet if used	-		IfcPropertySingleValue .Name="beheizbare Fläche", .Description="D_Merkmalkatalog_BFR ZG004.12..103 beheizbare Fläche" .Value=1045,25	GSC-276
		Load capacity	NOT APPLICABLE Load capacity of the floor	NOT used for international "Basic FM HandOver View", may be added in local adaptations	[FM-10]: not required for BIM/CAD (only for CAFM to CAFM exchange) [COBIE2]: optional - put in Attribute worksheet if used	-		IfcPropertySingleValue .Name="Deckentragfähigkeit", .Description="D_Merkmalkatalog_BFR ZA005.11..108 Deckentragfähigkeit" .Value=12,5	GSC-142
Spatial Decomposition				A building storey can only be contained in a building, or another building story, however the second is disallowed within the "Architectural HandOver to FM" view					GSC-042
		Building Storey contained in Building		mandatory relation for the spatial structure		M		IfcRelAggregates with .RelatingObject = IfcBuilding, and RelatedObjects=[SELF, other storeys]	GSC-088
		Building Storey contained in Building Storey	NOT ALLOWED	Needed in case a building storey is split into smaller parts	[General]: no sub stories contained in other stories.	N			GSC-105
		Space contained in Building Storey		mandatory relation for the spatial structure	[COBIE2]: spaces assigned to single floor in COBie2	M		IfcRelAggregates with .RelatingObject=SELF, and .RelatedObject = [IfcSpace1, 2, ... n]	GSC-106
Spatial Container									GSC-026
		Elements contained in Building Storey		Elements for inventories (FFE, MEP, etc.) shall be contained in spaces	[General]: as exception handling the building story container needs to be checked for elements [FM-10]: components are assigned to a space, exceptions are door/window, and components spanning over several spaces [COBIE2]: components assigned to individual spaces in COBie2	-	M		GSC-107


 buildingSMART <small>PM - Information Management for Infrastructure Delivery</small>					exchange requirements for the "Basic HandOver to Facility Management"							IFC Model View Definition	
Object Type										Export	Import		
Attribute Groups		Definitions and notes	Examples and further explanations	Comments	IFC Model Representation		MVD binding						
Property													
Space					[COBIE2]: space informaiton identified in Space worksheet			ifcSpace	GSC-113				
	Space Attributes								GSC-114				
		Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f23, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Floor.ExtIdentifier	M		IfcSpace.GlobalId	VLB-170				
		Short Name (ID)	Designer assigned name or short number	"EG-001.1"	[FM-10]: required [COBIE2]: reqd - Space.Name	M		IfcSpace.Name	GSC-116				
		Long Name	Room number (long)	"Office"	[FM-10]: required [COBIE2]: reqd - Space.Description	M		IfcSpace.LongName	GSC-117				
		Description	OPTIONAL Designer assigned description, "Corner office with harbor view"	not required for export	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcSpace.Description	GSC-118				
		Internal/External	Indication whether it is an internal or external space		[FM-10]: required [COBIE2]: optional - put in Attribute worksheet if used	M		IfcSpace.InteriorOrExteriorSpace	VBL-320				
	Space Classification								GSC-115				
		Space Classification	Classification	classifying the space type according to the local classification system, in Germany DIN277	[General]: requires to specify a classification system	M		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036				
		Classification Item Key	Classification notification key	HNF1	[COBIE2]: reqd - Space.Category first value of delimited list	M		IfcClassificationReference.ItemReference	(incl)				
		Classification Item Name	Classification notification (clear) name	Wohnen	[COBIE2]: reqd - Space.Category second value of delimited list	M		IfcClassificationReference.Name	(incl)				
		Classification System Name	Name of the classification system	DIN277-2	[COBIE2]: n/a	M		IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)				
		Classification System Edition	Edition or version of classification system	z.B. DIN277 - Name: DIN277-2, Edition: 2005	[General]: A common way of naming the editions has to be agreed upon for the major space classification systems. [FM-10]: regional specification (DIN277-2) [COBIE2]: regional specification (Omniclass Table 13 in NA)	O		IfcClassification.Edition (through IfcClassificationReference.ReferencedSource)	(incl)				
		Classification System ID	Identifyer of the classification system	unique identifier for a classification edition - not yet available	[COBIE2]: n/a	-		IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)				
	Space Base Quantities							IfcElementQuantity (through relationship IfcRelDefinedByProperties)	BSA-444				
		Height	(constant) height of the room	OPTIONAL for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - put in Attribute worksheet if used	O		IfcQuantityLength.Name= "Height"	BSA-279				
		FinishFloorHeight	(constant) height of the flooring of the room	NOT USED for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	-		IfcQuantityLength.Name= "FinishFloorHeight"	GSC-122				
		FinishCeilingHeight	(constant) clear height of the room (from top of flooring to bottom of (suspended) ceiling)		[COBIE2]: optional - put in Attribute worksheet if used	M		IfcQuantityLength.Name= "FinishCeilingHeight"	GSC-123				
		Perimeter	(constant) width of the room	OPTIONAL for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional, derived from space coordinates	O		IfcQuantityLength.Name= "GrossPerimeter"	BSA-283				


exchange requirements for the "Basic HandOver to Facility Management"								IFC Model View Definition	
Object Type						Export	Import		
Attribute Groups		Definitions and notes	Examples and further explanations	Comments	IFC Model Representation			MVD binding	
Property									
		GrossFloorArea	sum of all floor areas covered by the space	OPTIONAL for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - Space.GrossArea. Provision of this optional information grants higher ratings than files without optional information.	O		IfcQuantityArea.Name= "GrossFloorArea"	GSC-127
		NetFloorArea	sum of all usable floor areas covered by the space		[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - Space.NetArea. Provision of this optional information grants higher ratings than files without optional information.	M		IfcQuantityArea.Name= "NetFloorArea"	GSC-126
		GrossCeilingArea	sum of all ceiling areas of the space	OPTIONAL for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - put in Attribute worksheet if used	O		IfcQuantityArea.Name= "GrossCeilingArea"	GSC-128
		NetCeilingArea	sum of all ceiling areas covered by the space		[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - put in Attribute worksheet if used	M		IfcQuantityArea.Name= "NetCeilingArea"	GSC-129
		GrossWallArea	sum of all wall areas bounded by the space including the area that is normally covered by doors, windows or other opening	OPTIONAL for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - put in Attribute worksheet if used	O		IfcQuantityArea.Name= "GrossWallArea"	GSC-130
		NetWallArea	sum of all wall areas covered by the space		[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional - put in Attribute worksheet if used	M		IfcQuantityArea.Name= "NetWallArea"	GSC-131
		GrossVolume	Total volume that is enclosed by the space	NOT USED for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional, derived from space coordinates & finish floor height	-		IfcQuantityVolume.Name= "GrossVolume"	BSA-289
		NetVolume	Volume that is enclosed by the space, excluding the volume of construction elements inside the space.	NOT USED for "Basic FM HandOver View"	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: optional, derived from space coordinates & finish ceiling height	-		IfcQuantityVolume.Name= "NetVolume"	BSA-291
Space quantities									GSC-134
		FM catalogue quantity	Quantity that is specified by an external catalogue.	NOT used for "Basic FM HandOver View"	[General]: In particular interesting for data exchange between CAFM [COBIE2]: n/a	-		IfcElementQuantity (through relationship IfcRelDefinedByProperties)	GSC-135
Space properties									GSC-136
		Space Common Properies	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: required COBie2 properties are identified for every space in the COBie2 file	M		IfcPropertySet with Name = "Pset_SpaceCommon"	GSC-137
		Flooring	name of flooring (material finish), only to be used as a simplification, i.e. if there are no IfcCovering objects contained in the space (IfcCovering becomes manadatory, if there are two or more floorings	e.g. carpet, tiles, etc, quantities for flooring taken from base quantity "NetFloorArea"	[General]: to be used, if there is no covering object [FM-10]: required If there is no covering object, the space net area is also the flooring area [COBIE2]: reqd - min one Attribute worksheet "Flooring" row for each Space.Name	M/O		IjcPropertySingleValue with Name = "FloorCovering"	GSC-138


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Object Type										Export	Import		
Attribute Groups													
Property						Definitions and notes	Examples and further explanations	Comments				IFC Model Representation	MVD binding
			Ceiling			name of ceiling (material finish) only to be used as a simplification, i.e. if there are no IfcCovering objects contained in the space (IfcCovering becomes mandatory, if there are two or more ceilings (or complicated suspended ceiling structure))	painting, suspended ceiling, etc, quantities for ceiling taken from base quantity "NetCeilingArea"	[General]: to be used, if there is no covering object [FM-10]: required If there is no covering object, the space net ceiling area is also the flooring area [COBIE2]: reqd - min one attribute worksheet "Ceiling" row for each Space.Name	M/O			IfcPropertySingleValue with Name = "CeilingCovering"	GSC-139
			Cladding			name of cladding (material finish) only to be used as a simplification, i.e. if there are no IfcCovering objects contained in the space (IfcCovering becomes mandatory, if there are two or more claddings)	painting, wall paper, etc, quantities for cladding taken from base quantity "NetWallArea"	[General]: to be used, if there is no covering object [FM-10]: required If there is no covering object, the space net wall area is also the cladding area [COBIE2]: reqd - min one attribute worksheet "Cladding" row for each Space.Name	M/O			IfcPropertySingleValue with Name = "WallCovering"	GSC-140
			Space Catalogue Properties			Properties that are specified according to an external catalogue.						IfcPropertySet with Name = /* to be decided in local context */	GSC-141
			Load capacity			Load capacity of the floor	NOT USED for "Basic FM HandOver View"	[General]: LoadCapacity should be included in standard space properties in future. [FM-10]: not required for BIM/CAD (only for CAFM to CAFM exchange) [COBIE2]: reqd - min one attribute worksheet "LoadCapacity" row for each Space.Name	-			IfcPropertySingleValue .Name="Deckentragfähigkeit", .Description="D_Merkmalkatalog_BFR ZA005.11..108 Deckentragfähigkeit" .Value=12,5	(incl)
			Spatial Decomposition				A space can only be contained in a site, a building story, or another space, however the last is disallowed within the "Architectural HandOver to FM view"	[COBIE2]: see zones					GSC-042
			Space contained in Building Storey			Space as part of the building structure		[COBIE2]: reqd - Space.FloorName	M			IfcRelAggregates with .RelatingObject = IfcBuildingStorey, and RelatedObjects=[SELF, other spaces]	GSC-106
			Space contained in Space			Needed in case a building storey is split into smaller parts.	NOT allowed for "Basic FM HandOver View"	[General]: space nesting not allowed	N				GSC-143
			Spatial Container										GSC-026
			Elements contained in Space			Furniture and equipment fully contained in space	required for furniture and MEP components, if fully enclosed by a space	[General]: Required for export is assignment to space (only as fallback in extreme cases to storey (on import, both need to be supported)) [COBIE2]: reqd - Component.SpaceNames	M			IfcRelContainedInSpatialStructure with .RelatingStructure = SELF, and RelatedElements=[IfcFurnnishingElement, IfcBuildingElementProxy, IfcDistributionElement, etc.]	GSC-144
			Coverings contained in Space			Covering elements of the space	to be included, if not to be defined by a simple property in the common property set, i.e. if a single space has two floorings (split by carpet and tiles.	[General]: Use IfcRelContainedInSpatialStructure, not IfcRelCoversSpaces to express the spatial containment [FM-10]: required, if the flooring, ceiling or cladding does not cover all floor, ceiling or wall area of a space. [COBIE2]: n/a	M			IfcRelContainedInSpatialStructure with .RelatingStructure = SELF, and RelatedElements=[IfcCovering, other covered elements]	GSC-145
			Doors/Windows contained in Space			Doors, Windows assigned by a 1:1 containment relationship (optionally)	required for doors and windows, if already assigned to a single space	[General]: Reference of doors, windows linked to the space (1) by containment - direct assignement of door , windowto one space, or (2) by boundary elements, i.e. linking one door , window to two spaces [FM-10]: either this containment is requires, or the boundary relation to one or two spaces. [COBIE2]: reqd - Doors/Windows identified within one or two spaces	M/O			IfcRelContainedInSpatialStructure with .RelatingStructure = SELF, and RelatedElements=[IfcDoor, IfcWindow]	GSC-183 GSC-206
			Space Boundary										VBL-417


				exchange requirements for the "Basic HandOver to Facility Management"						IFC Model View Definition	
Object Type								Export	Import		
Attribute Groups		Definitions and notes		Examples and further explanations		Comments	IFC Model Representation			MVD binding	
Property											
			Doors/Windows bounding Spaces	Doors, Windows assigned by a 1:2 boundary relationship (mandatory, if no containment)	required for doors and windows, if not already assigned to a single space	<i>[General]: for external doors and windows there is only one boundary to space (therefore unambiguous), for internal doors and windows there are two boundaries (to two spaces)</i> <i>[FM-10]: either the containment is requires, or this boundary relation to one or two spaces.</i> <i>[COBIE2]: reqd - min one Attribute worksheet "IsExternal" row for each appropriate object</i>		M/O		IfcRelSpaceBoundary with RelatingSpace=SELF, and RelatedElements=IfcDoor OR IfcWindow	GSC-184 GSC-207
Covering				Coverings are to be included as individual elements if there is not only a single ceiling, cladding and flooring, as included in the space property set. Particularly used, if there are two or several distinct floorings, claddings and floorings	examples include elevated floors, suspended ceilings, wall claddings, etc. Used in particular, if a space has several floorings, ceilings, or claddings, each occupying a partial area.	<i>[General]: to be used, if coverings are not unique withon a space for ceiling, cladding, flooring</i> <i>[COBIE2]: simplified COBie2 models assume a space has a single type of covering. If needed break large spaces into multiple sub spaces that have common coverings</i>				IfcCovering	GSC-148
	Covering attributes										GSC-149
			Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f31, has to be maintained by the application (e.g. for re-export)	<i>[FM-10]: software key, does not yield any human interpretation</i>		M		IfcCovering.GlobalId	VBL-170
			Name	Individual element name (for human reference)		<i>[FM-10]: required to identify the covering</i>		M		IfcCovering.Name	GSC-150
			Description	Additional description	OPTIONAL for "Basic FM HandOver View"			O		IfcCovering.Description	GSC-151
			Predefined Covering Type Enumerator	Covering type as assigned to the individual element	being either "Ceiling, Cladding, Flooring"	<i>[FM-10]: required to identify the covering</i>		M		IfcCovering.PredefinedType	GSC-153
	Covering Type										GSC-152
			Covering Type	Reference to the common covering type used for all occurrences of the covering	OPTIONAL for "Basic FM HandOver View"	<i>[FM-10]: Types are also called "style", or "family" in CAD software</i>		O		IfcCoveringType (through relationship IfcRelDefinesByType)	GSC-214
			Name	Individual type name (for human reference)				O		IfcCoveringType.Name	GSC-154
			Description	Additional description				O		IfcCoveringType.Description	GSC-277
			Type	Covering type as assigned to the type	being either "Ceiling, Cladding, Flooring"	<i>[General]: if a covering type is provided at both, IfcCovering and IfcCoveringType, then the type at IfcCovering overrides.</i>		O		IfcCoveringType.ElementType	GSC-153
			Material	Material as assigned to the type	material information as shown below for element materials	<i>[General]: if a material is provided at both, IfcCovering and IfcCoveringType, then the material at IfcCovering overrides.</i>		O		IfcMaterial, or IfcMaterialLayerSet (through relationsip IfcRelAssociatesMaterial)	GSC-155
			Classification	Classification as assigned to the type	classification information as shown below for element classification	<i>[General]: if a covering classification is provided at both, IfcCovering and IfcCoveringType, then the classification at IfcCovering overrides.</i>		O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-158
			Properties	Properties as assigned to the type	property set information as shown below for element properties	<i>[General]: if a covering property is provided at both, IfcCovering and IfcCoveringType, then the property at IfcCovering overrides.</i>		O		IfcPropertySet (through relationship IfcRelDefinesByType and IfcCoveringType.HasPropertySets)	GSC-278

<div>exchange requirements for the "Basic HandOver to Facility Management"</div>							IFC Model View Definition		
Object Type					Export	Import			
Attribute Groups									
Property									
Definitions and notes					Examples and further explanations				
Comments									
Covering Material								GSC-155	
	Material						IfcMaterial, or IfcMaterialLayerSet (through relationship IfcRelAssociatesMaterial)		
	Material thickness				thickness of the material layer, many layers can be defined			IfcMaterialLayer.LayerThickness	GSC-156
	Material name				name of the material, for multi-layer coverings, each layer has a material name			IfcMaterial.Name	GSC-157
Covering Classification								GSC-158	
	Classification				Covering classification	OPTIONAL for "Basic FM HandOver View", requires to specify a classification system	[General]: In particular interesting for data exchange between CAFM	IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
	Classification Item Key				Key of classification item within the classification system		[COBIE2]: reqd - Space.Category first value of delimited list	IfcClassificationReference.ItemReference	(incl)
	Classification Item Name				Clear name of the classification item		[COBIE2]: reqd - Space.Category second value of delimited list	IfcClassificationReference.Name	(incl)
	Classification System Name				Name of the classification system			IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
	Classification System ID				Identifyer of the classification system			IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
Covering Base Quantities								IfcElementQuantity (through relationship IfcRelDefinedByProperties)	GSC-159
	Gross Area				Total area of the covering in the elevation view.		[General]: definitions of base quantities taken from German QTO project PM-4	IfcQuantityArea.Name="GrossArea"	GSC-160
	Net Area				Area of the covering in the elevation view taking into account openings.		[General]: definitions of base quantities taken from German QTO project PM-5 [FM-10]: required	IfcQuantityArea.Name="NetArea"	GSC-161
Spatial Container									GSC-026
	Coverings contained in Space				A covering element has to be contained in a space (and not in a building storey)		[General]: coverings must have a relationship to spaces	IfcRelContainedInSpatialStructure with .RelatingStructure = SELF, and RelatedElements=[IfcCovering, other covered elements]	GSC-145
	Covering covers Space					usage of this relationship is disallowed in the "Architectural HandOver to FM" view		IfcRelCoversSpace and/or IfcRelSpaceBoundary	GSC-163


<div>exchange requirements for the "Basic HandOver to Facility Management"</div>						IFC Model View Definition	
Object Type				Export	Import		
Attribute Groups							
Property	Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding
Window						IfcWindow	GSC-164
Window Attributes							GSC-185
	Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f61, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Component.ExtIdentifier	M	IfcWindow.GlobalId	VBL-170
	Name	Individual element name (for human reference)		[COBIE2]: reqd - Component.Name	M	IfcWindow.Name	GSC-165
	Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description, no separate description for specific component	O	IfcWindow.Description	GSC-166
Window Type				[COBIE2]: Type worksheet holds all COBie2 types			GSC-167
	Window type	Reference to the common window type used for all occurrences of the same window type	e.g one type for all Pivoting Windows 0,75x150	[FM-10]: Types are also called "style", or "family" in CAD software [COBIE2]: reqd if created by external system Type.ExtIdentifier	M	IfcWindowStyle (through relationship IfcRelDefinesByType)	GSC-171
	Name	Individual type name (for human reference)	e.g. "Klippfenster 0,76*1,51"	[COBIE2]: reqd - Type.Name	M	IfcWindowStyle.Name	GSC-238
	Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description	O	IfcWindowStyle.Description	GSC-169
	Construction type	The construction type relates to the main material (or material combination) used for making the window, e.g. wood, aluminium, plastics, etc.	OPTIONAL for "Basic FM HandOver View"	[General]: to be used in absense of an individual material definition attached using ifcRelAssociatesMaterial [COBIE2]: reqd - min one attribute worksheet "ConstructionType" row for each window type	O	IfcWindowStyle.ConstructionType	GSC-168
	Operation type	The configuration of the window panels, single panel, double panel, triple panel, and whether horizontal or vertical		[FM-10]: required in combinationwith operation type [COBIE2]: reqd - min one attribute worksheet "ConfigurationType" row for each window type	M	IfcWindowStyle.OperationType	GSC-170
	Panel Operation type	The way the window is operated	sliding, pivoting, swinging, tilt&turn, etc.	[General]: note that in a multi-panel window, each panel may have a different operation type [FM-10]: required in combinationwith configuration type [COBIE2]: reqd - min one attribute worksheet "OperationType" row for each window type	M	IfcWindowPanelProperties.OperationType (through IfcWindowStyle.HasPropertySets	GSC-279
	Material	Material as assigned to the type	OPTIONAL for "Basic FM HandOver View" material information as shown below for element materials	[General]: if a material is provided at both, IfcWindow and IfcWindowStyle, then the material at IfcWindow overrides. [COBIE2]: reqd - min one attribute worksheet "Material" row for each window type	O	IfcMaterial, or IfcMaterialLayerSet (through relationsip IfcRelAssociatesMaterial)	(incl)
	Classification	Classification as assigned to the type	OPTIONAL for "Basic FM HandOver View" classification information as shown below for element classification	[General]: if a window classification is provided at both, IfcWindow and IfcWindowType, then the classification at IfcWindow overrides. [COBIE2]: see Classification below	O	IfcClassificationReference (through relationship IfcRelAssociatesClassification)	(incl)
	Properties	Properties as assigned to the type	OPTIONAL for "Basic FM HandOver View" property set information as shown below for element properties	[General]: if a window property is provided at both, IfcWindow and IfcWindowType, then the property at IfcWindow overrides. [COBIE2]: properties of individual components that differ from type must be reported as properties of the Component.	O	IfcPropertySet (through relationship IfcRelDefinesByType and IfcWindowStyle.HasPropertySets)	(incl)
Window Classification				[COBIE2]: see Classification below			GSC-172


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Object Type					Export	Import	IFC Model Representation		MVD binding
Attribute Groups									
Property									
Definitions and notes									
Examples and further explanations									
Comments									
		Classification	Covering classification	OPTIONAL for "Basic FM HandOver View", requires to specify a classification svstem	[General]: In particular interesting for data exchange between CAFM	O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
		Classification Item Key	Key of classification item within the classification system	OPTIONAL for "Basic FM HandOver View	[COBIE2]: reqd - Space.Category first value of delimited list	O		IfcClassificationReference.ItemReferenc e	(incl)
		Classification Item Name	Clear name of the classification item	OPTIONAL for "Basic FM HandOver View	[COBIE2]: reqd - Space.Category second value of delimited list	O		IfcClassificationReference.Name	(incl)
		Classification System Name	Name of the classification system	OPTIONAL for "Basic FM HandOver View	[COBIE2]: n/a	O		IfcClassification.Name (through IfcClassificationReference.ReferencedSo urce)	(incl)
		Classification System ID	Identifyer of the classification system	OPTIONAL for "Basic FM HandOver View	[COBIE2]: regional specification (Omniclass Table 23 in NA)	O		IfcClassification.Source (through IfcClassificationReference.ReferencedSo urce)	(incl)
Window Material									GSC-173
		Material	base material for the window					IfcMaterial (through relationsip IfcRelAssociatesMaterial)	
		Material name	name of the material	OPTIONAL for "Basic FM HandOver View", see IfcWindowStyle.ConstructionType	[COBIE2]: see previous note on Material Property	O		IfcMaterial.Name	GSC-174
Window base quantities									
		Width	Width of the window lining, to be provided for rectangular windows.		[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: reqd - min one attribute worksheet "Width" row for each window type	M/O		IfcQuantityLength.Name="Width"	BSA-405
		Height	Height of the window lining, to be provided for rectangular windows.		[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: reqd - min one attribute worksheet "Height" row for each window type	M/O		IfcQuantityLength.Name="Height"	BSA-404
		Area	Area of the window, including frame and lining.	Note: the area contains both, framing and glazing. The glazing area is defined by Area * GlazingAreaFraction	[General]: definitions of base quantities taken from German QTO project PM-4 [COBIE2]: reqd - min one attribute worksheet "Area" row for each window type	M		IfcQuantityArea.Name="Area"	BSA-410
Window properties									
		Window Common Properies	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: object properties are assigned against Type.	M		IfcPropertySet (through relationship IfcRelDefinedByProperties)	GSC-179
		Fire resistance	String according to national building code	e.g. F30	[COBIE2]: reqd - min one attribute worksheet "FireRating" row for each window type	M		IfcPropertySingleValue with Name = "FireRating"	GSC-180
		Glazing area	Provided as a fraction of the total window area	e.g. 0.8 (for 80%)	[FM-10]: Note that the glazing area has to be calculated by GlazingAreaFraction * Area [COBIE2]: reqd - min one attribute worksheet "GlazingPct" row for each window type	M		IfcPropertySingleValue with Name = "GlazingAreaFraction"	GSC-181


 exchange requirements for the "Basic HandOver to Facility Management"								IFC Model View Definition	
Object Type						Export	Import		
Attribute Groups									
Property									
Definitions and notes						Examples and further explanations			
Comments									
		Internal/External	Indication whether it is an internal or external (part of the facade) window	TRUE (external) or FALSE (internal)	[COBIE2]: reqd - min one attribute worksheet "IsExternal" row for each window type	M		IfcPropertySingleValue with Name = "IsExternal"	GSC-280
	Window Manufacturer Properties		Properties that are specified in the manufacturer property definitions (or a relevant subset of)	OPTIONAL for "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: manufacturer items are evaluated only on COBie2 construction files	O		IfcPropertySet with Name = "Pset_ManufacturerTypeInformation"	GSC-250
		Article Number	Article number or reference	OPTIONAL for "Basic FM HandOver View"		O		IfcPropertySingleValue with Name = "ArticleNumber"	GSC-251
		Model Name	The name of the manufactured item as used by the manufacturer.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ModelReference"	GSC-252
		Model Number	The model number and/or unit designator assigned by the manufacturer	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.ModelNumber	O		IfcPropertySingleValue with Name = "ModelLabel"	GSC-253
		Manufacturer	The organization that manufactured and/or assembled the item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.Manufacturer	O		IfcPropertySingleValue with Name = "Manufacturer"	GSC-254
		Year of Production	The year of production of the manufactured item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ProductionYear"	GSC-260
Spatial Container									GSC-026
	Windows contained in Building Story		A window can be contained in a building storey, if there is a boundary relationship to one or two spaces	either contained in building storey, or space (exactly one of both has to be provided)	[FM-10]: if contained in building story, a space boundary to 1..2 spaces required [COBIE2]: components may only be installed within spaces in COBie2	M/O		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcBuildingStorey, and RelatedElements=[IfcWindow, other contained elements]	GSC-182
	Windows contained in Space		A window can be contained in a space, then no additional boundary relation is further analysed	either contained in building storey, or space (if already assigned to a single space in architectural CAD)	[General]: would normally require additional input in CAD system (i.e. the user to select the space the window belongs to) [COBIE2]: reqd - Component.Spacenames, either using containment, or boundary relation (see below)	M/O		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcStorey, and RelatedElements=[IfcWindow, other contained elements]	GSC-183
Space boundary									VBL-417
	Window bounding Space		A window can bound a single space (if external window, or two spaces (if internal window)		[FM-10]: required, if not already contained in space [COBIE2]: all components may be identified in one or more spaces in COBie2	M/O		IfcRelSpaceBoundary with RelatingSpace=IfcSpace, and RelatedElements=SELF	GSC-184

 exchange requirements for the "Basic HandOver to Facility Management"							IFC Model View Definition		
Object Type					Export	Import			
Attribute Groups									
Property									
Definitions and notes					Examples and further explanations				
Comments									
Door				[COBIE2]: object classes must be strongly typed using the Type worksheet. Instances found in Component worksheet.			IfcDoor	GSC-125	
	Door Attributes							GSC-187	
	Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f61, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Component.ExtIdentifier	M		IfcDoor.GlobalId	VBL-170	
	Name	Individual element name (for human reference)		[COBIE2]: reqd - Component.Name	M		IfcDoor.Name	GSC-188	
	Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description, no separate description for specific component	O		IfcDoor.Description	GSC-189	
	Door Type			[COBIE2]: Type worksheet holds all COBie2 types				GSC-190	
	Door type	Reference to the common door type used for all occurrences of the same door type	e.g one type for all single swing doors 0,885x2,01	[FM-10]: Types are also called "style", or "family" in CAD software [COBIE2]: reqd if created by external system Type.ExtIdentifier	M		IfcDoorStyle (through relationship IfcRelDefinesByType)	GSC-191	
		Name	Individual type name (for human reference)	e.g. "Einflügeltür 0,76*2,01"	M		IfcDoorStyle.Name	GSC-274	
		Description	Additional description	OPTIONAL for "Basic FM HandOver View"	O		IfcDoorStyle.Description	GSC-275	
		Construction type	The construction type relates to the main material (or material combination) used for making the door.	e.g. wood, aluminium, plastics, etc.	O		IfcDoorStyle.ConstructionType	GSC-192	
		Operation type	The way the door is operated, including the configuration of single or double door.	single swing, double swing, single sliding, double sliding, revolving, etc-	M		IfcDoorStyle.OperationType	GSC-193	
		Material	Material as assigned to the type	OPTIONAL for "Basic FM HandOver View" material information as shown below for element materials	O		IfcMaterial, or IfcMaterialLayerSet (through relationsip IfcRelAssociatesMaterial)	GSC-195	
		Classification	Classification as assigned to the type	OPTIONAL for "Basic FM HandOver View" classification information as shown below for element classification	O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-194	
		Properties	Properties as assigned to the type	OPTIONAL for "Basic FM HandOver View" property set information as shown below for element properties	O		IfcPropertySet (through relationship IfcRelDefinesByType and IfcDoorStyle.HasPropertySets)	GSC-201	
	Door Classification			[COBIE2]: see Classification below				GSC-194	
		Classification	Door classification	OPTIONAL for "Basic FM HandOver View", requires to specify a classification system	O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036	
		Classification Item Key	Key of classification item within the classification system	OPTIONAL for "Basic FM HandOver View"	O		IfcClassificationReference.ItemReference	(incl)	
		Classification Item Name	Clear name of the classification item	OPTIONAL for "Basic FM HandOver View"	O		IfcClassificationReference.Name	(incl)	


buildingSMART						exchange requirements for the "Basic HandOver to Facility Management"						IFC Model View Definition	
Object Type										Export	Import		
Attribute Groups													
Property						Definitions and notes	Examples and further explanations	Comments				IFC Model Representation	MVD binding
			Classification System Name	Name of the classification system	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: n/a			O			IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
			Classification System ID	Identifyer of the classification system	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: regional specification (Omniclass Table 23 in NA)			-			IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
			Door Material										GSC-195
			Material	base material for the door								IfcMaterial (through relationsip IfcRelAssociatesMaterial)	
			Material name	name of the material		[COBIE2]: see previous note on Material Property			O			IfcMaterial.Name	GSC-174
			Door base quantities									IfcElementQuantity (through relationship IfcRelDefinedByProperties)	BSA-452
			Width	Width of the door lining, to be provided for rectangular doors.		[COBIE2]: reqd - min one attribute worksheet "Width" row for each door type			M/O			IfcQuantityLength.Name="Width"	BSA-340
			Height	Height of the door lining, to be provided for rectangular doors.		[COBIE2]: reqd - min one attribute worksheet "Height" row for each door type			M/O			IfcQuantityLength.Name="Height"	BSA-339
			Area	Area of the door, including frame and lining.	Note: the area contains both, framing and glazing. The glazing area is defined by Area * GlazingAreaFraction	[COBIE2]: reqd - min one attribute worksheet "Area" row for each door type			M			IfcQuantityArea.Name="Area"	GSC-200
			Door properties									IfcPropertySet (through relationship IfcRelDefinedByProperties)	GDC-201
			Door Common Properies	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: object properties are assigned against Type.			M			IfcPropertySet with Name = "Pset_DoorCommon"	GSC-202
			Fire resistance	String according to national building code	e.g. T90	[COBIE2]: reqd - min one attribute worksheet "FireRating" row for each window type			M			IfcPropertySingleValue with Name = "FireRating"	GSC-180
			Glazing area	Provided as a fraction of the total door area	e.g. 0.2 (for 20%)	[COBIE2]: reqd - min one attribute worksheet "GlazingPct" row for each window type			M			IfcPropertySingleValue with Name = "GlazingAreaFraction"	GSC-181
			Fire exit	Boolean choice whether fire exit door or not	FALSE	[COBIE2]: reqd - min one attribute worksheet "IsFireExit" row for each window type			M			IfcPropertySingleValue with Name = "FireExit"	GSC-204
			Internal/External	Indication whether it is an internal or external (part of the facade) door	TRUE (external) or FALSE (internal)	[COBIE2]: reqd - min one attribute worksheet "IsExternal" row for each window type			M			IfcPropertySingleValue with Name = "IsExternal"	ICC-272
			Door Manufacturer Properties	Properties that are specified in the manufacturer property definitions (or a relevant subset of)	OPTIONAL for "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: manufacturer items are evaluated only on COBie2 construction files			O			IfcPropertySet with Name = "Pset_ManufacturerTypeInfoormation"	GSC-255
			Article Number	Article number or reference	OPTIONAL for "Basic FM HandOver View"				O			IfcPropertySingleValue with Name = "ArticleNumber"	GSC-251

 exchange requirements for the "Basic HandOver to Facility Management"								IFC Model View Definition	
Object Type						Export	Import		
Attribute Groups		Definitions and notes	Examples and further explanations	Comments	IFC Model Representation			MVD binding	
Property									
		Model Name	The name of the manufactured item as used by the manufacturer.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ModelReference"	GSC-252
		Model Number	The model number and/or unit designator assigned by the manufacturer	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.ModelNumber	O		IfcPropertySingleValue with Name = "ModelLabel"	GSC-253
		Manufacturer	The organization that manufactured and/or assembled the item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.Manufacturer	O		IfcPropertySingleValue with Name = "Manufacturer"	GSC-254
		Year of Production	The year of production of the manufactured item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ProductionYear"	GSC-260
Spatial Container									GSC-026
	Doors contained in Building Story	A door can be contained in a building storey	either contained in building storey, or space (exactly one of both has to be provided)	[FM-10]: if contained in building story, a space boundary to 1..2 spaces required [COBIE2]: components may only be installed within spaces in COBie2		M/O		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcBuildingStorey, and RelatedElements=[IfcWindow, other contained elements]	GSC-205
	Doors contained in Space	A door can be contained in a space	either contained in building storey, or space (if already assigned to a single space in architectural CAD)	[General]: would normally require additional input in CAD system (i.e. the user to select the space the window belongs to) [COBIE2]: reqd - Component.Spacenames		M/O		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcStorey, and RelatedElements=[IfcWindow, other contained elements]	GSC-206
Space Boundary									VBL-417
	Door bounding Space	A door can bound a single space (if external door, or two spaces (if internal door)		[FM-10]: required, if not already contained in space [COBIE2]: all components may be identified in one or more spaces in COBie2		M/O		IfcRelSpaceBoundary with RelatingSpace=IfcSpace, and RelatedElements=SELF	GSC-207


 <i>exchange requirements for the "Basic HandOver to Facility Management"</i>						<i>IFC Model View Definition</i>	
Object Type				Export	Import		
Attribute Groups							
Property	Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding
Furnishing			[COBIE2]: object classes must be strongly typed using the Type worksheet. Instances found in Component worksheet.			IfcFurnishingElement	GSC-208
<i>Furnishing Attributes</i>							GSC-209
Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f61, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Component.ExtIdentifier	M		IfcFurnishingElement.GlobalId	VBL-170
Name	Individual element name (for human reference)		[COBIE2]: reqd - Component.Name	M		IfcFurnishingElement.Name	GSC-210
Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description, no separate description for specific component	O		IfcFurnishingElement.Description	GSC-211
<i>Furnishing Type</i>							GSC-212
Furnishing type name		e.g. chair, desk, table, ...	[COBIE2]: reqd if created by external system Type.ExtIdentifier	M		IfcFurnishingElement.ObjectType	GSC-281
Furnishing Type	Reference to the common furniture type used for all occurrences of the furniture	required reference to a common type (family, style, etc.)	[General]: Types are also called "style", or "family" in CAD software [COBIE2]: Type worksheet holds all COBie2 types	M		IfcFurnitureType (through relationship IfcRelDefinesByType), or ist subtypes IfcFurnitureType and IfcSystemFurnitureType	GSC-261
Name	Individual type name (for human reference)		[COBIE2]: reqd - Type.Name	M		IfcFurnitureType.Name	GSC-213
Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description	O		IfcFurnitureType.Description	GSC-262
Type	Furnishing type as assigned to the type	OPTIONAL for "Basic FM HandOver View" e.g. chair, desk, table, ...	[General]: if a furnishing type is provided at both, IfcFurnishingElement and IfcFurnitureType, then the type at IfcFurnishingElement overrides. [COBIE2]: reqd - min one attribute worksheet "Type" row for each furnishing type	O		IfcFurnitureType.ElementType	GSC-282
Material	Material as assigned to the type	OPTIONAL for "Basic FM HandOver View" material information as shown below for element materials	[General]: if a material is provided at both, IfcFurnishingElement and IfcFurnitureType, then the material at IfcFurnishingElement overrides. [COBIE2]: reqd - min one attribute worksheet "Material" row for each furnishing type	O		IfcMaterial, or IfcMaterialLayerSet (through relationsip IfcRelAssociatesMaterial)	GSC-215
Classification	Classification as assigned to the type	OPTIONAL for "Basic FM HandOver View" classification information as shown below for element classification	[General]: if a furnishing classification is provided at both, IfcFurnishingElement and IfcFurnitureType, then the classification at IfcFurnishingElement overrides. [COBIE2]: see Classification below	O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-217
Properties	Properties as assigned to the type	OPTIONAL for "Basic FM HandOver View" property set information as shown below for element properties	[General]: if a furnishing property is provided at both, IfcFurnishingElement and IfcFurnitureType, then the property at IfcFurnishingElement overrides. [COBIE2]: properties of individual components that differ from type must be reported as properties of the Component.	O		IfcPropertySet (through relationship IfcRelDefinesByType and IfcFurnitureType.HasPropertySets)	GSC-218
<i>Furnishing Material</i>							GSC-215
Material	base material for furniture			O		IfcMaterial (through relationsip IfcRelAssociatesMaterial)	
Material name	name of the material		[COBIE2]: see previous note on Material Property	O		IfcMaterial.Name	GSC-174
<i>Furnishing Classification</i>							GSC-217


<div>exchange requirements for the "Basic HandOver to Facility Management"</div>							IFC Model View Definition		
Object Type					Export	Import			
Attribute Groups									
Property							MVD binding		
Definitions and notes					Examples and further explanations				
Comments									
		Classification	Furniture classification	USED for "Basic FM HandOver View", requires to specify a classification system	[General]: In particular interesting for data exchange between CAFM	M		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
		Classification Item Key	Key of classification item within the classification system		[COBIE2]: reqd - Space.Category first value of delimited list	M		IfcClassificationReference.ItemReference	(incl)
		Classification Item Name	Clear name of the classification item		[COBIE2]: reqd - Space.Category second value of delimited list	M		IfcClassificationReference.Name	(incl)
		Classification System Name	Name of the classification system		[COBIE2]: n/a	M		IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
		Classification System ID	Identifyer of the classification system		[COBIE2]: regional specification (Omniclass Table 23 in NA)	-		IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
Furnishing properties								IfcPropertySet for IfcFurnishingElement (through relationship IfcRelDefinesByProperties)	GSC-218
		Furniture Common Properies	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: object properties are assigned against Type.	O		IfcPropertySet with Name = "Pset_FurnitureTypeCommon"	GSc-219
		Length	Overall length as provided by the manufacturer data.		[COBIE2]: reqd - min one attribute worksheet "Width" row for each furnishing type	O		IfcPropertySingleValue with Name = "NominalLength"	GSC-220
		Depth	Overall depth as provided by the manufacturer data.		[COBIE2]: reqd - min one attribute worksheet "Height" row for each furnishing type	O		IfcPropertySingleValue with Name = "NominalDepth"	GSC-221
		Height	Overall height as provided by the manufacturer data.		[COBIE2]: reqd - min one attribute worksheet "Area" row for each furnishing type	O		IfcPropertySingleValue with Name = "NominalHeight"	GSC-222
		Furnishing Manufacturer Properties	Properties that are specified in the manufacturer property definitions (or a relevant subset of)	OPTIONAL for "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: manufacturer items are evaluated only on COBie2 construction files	O		IfcPropertySet with Name = "Pset_ManufacturerTypeInfoormation"	GSC-256
		Article Number	Article number or reference	OPTIONAL for "Basic FM HandOver View"		O		IfcPropertySingleValue with Name = "ArticleNumber"	GSC-251
		Model Name	The name of the manufactured item as used by the manufacturer.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ModelReference"	GSC-252
		Model Number	The model number and/or unit designator assigned by the manufacturer	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.ModelNumber	O		IfcPropertySingleValue with Name = "ModelLabel"	GSC-253
		Manufacturer	The organization that manufactured and/or assembled the item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.Manufacturer	O		IfcPropertySingleValue with Name = "Manufacturer"	GSC-254
		Year of Production	The year of production of the manufactured item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ProductionYear"	GSC-260
Spatial Container									GSC-026


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Object Type									Export	Import		
Attribute Groups												
Property					Definitions and notes	Examples and further explanations	Comments				IFC Model Representation	MVD binding
					Furniture contained in Building Storey	A furniture can be contained in a building storey	Contained in building storey only in exceptional cases. I.e. on export certification checks on assignment to space, on import certification checks exception handling for furniture in building storey	[General]: for import the ability has to be provided to accept furniture on storey [COBIE2]: components may only be installed within spaces in COBie2	N	M	IfcRelContainedInSpatialStructure with .RelatingStructure = IfcBuildingStorey, and RelatedElements=[IfcWindow, other contained elements]	GSC-223
					Furniture contained in Space	A furniture can be contained in a space	either contained in building storey, or space (assignment to space is required for all standard configurations)	[General]: for export the ability to assign furniture to space is essential and has to be provided [COBIE2]: reqd - Component.SpaceNames	M		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcStorey, and RelatedElements=[IfcWindow, other contained elements]	GSC-224
Building service elements (MEP elements)						as far as it is in scope of the architectural software application, to be in scope of MEP software		[General]: the correct subtypes have to be used, e.g. IfcFlowTerminal for sanitary elements or space heaters [COBIE2]: object classes must be strongly typed using the Type worksheet. Instances found in Component worksheet.			IfcDistributionElement (and subtypes) - IfcFlowController - IfcFlowTerminal - IfcFlowMovingDevice - IfcEnergyConversionDevice - IfcFlowStorageDevice - IfcFlowTreatmentDevice	GSC-258
					MEP Attributes							GSC-259
					Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f81, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Component.ExtIdentifier	M		IfcDistributionElement.GlobalId	VBL-170
					Name	Individual element name (for human reference)		[COBIE2]: reqd - Component.Name	M		IfcDistributionElement.Name	GSC-216
					Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description, no separate description for specific component	O		IfcDistributionElement.Description	GSC-203
					MEP Type							GSC-146
					MEP type name			[COBIE2]: reqd if created by external system Type.ExtIdentifier	M		IfcDistributionElement.ObjectType	GSC-283
					MEP Type	Reference to the common MEP type used for all occurrences of the MEP element	REQUIRED for "Basic FM HandOver View" for MEP Software	[General]: the correct subtypes have to be used, e.g. IfcSanitaryTerminalType for sanitary elements or IfcSpaceHeaterType for space heaters [FM-10]: Types are also called "style", or "family" in CAD software [COBIE2]: Type worksheet holds all COBie2 types	M		IfcDistributionElementType(subtypes) (through relationship IfcRelDefinesByType)	GSC-263
								[General]: chose correct type for the MEP element			IfcFlowControllerType IfcAirTerminalBoxType ,IfcDamperType ,IfcElectricTimeControlType ,IfcFlowMeterType ,IfcProtectiveDeviceType ,IfcSwitchingDeviceType	


<div>exchange requirements for the "Basic HandOver to Facility Management"</div>								IFC Model View Definition	
Object Type						Export	Import		
Attribute Groups								IFC Model Representation	MVD binding
Property									
Definitions and notes						Examples and further explanations			
Comments									
					[General]: chose correct type for the MEP element			IfcFlowTerminalType IfcAirTerminalType ,IfcElectricApplianceType ,IfcElectricHeaterType ,IfcFireSuppressionTerminalType ,IfcGasTerminalType ,IfcLampType ,IfcLightFixtureType ,IfcOutletType ,IfcSanitaryTerminalType ,IfcStackTerminalType	
					[General]: chose correct type for the MEP element			IfcFlowMovingDeviceType IfcCompressorType ,IfcFanType ,IfcPumpType	
					[General]: chose correct type for the MEP element			IfcEnergyConversionDeviceType IfcAirToAirHeatRecoveryType ,IfcBoilerType ,IfcChillerType ,IfcCoilType ,IfcCondenserType ,IfcCooledBeamType ,IfcCoolingTowerType ,IfcElectricGeneratorType ,IfcElectricMotorType ,IfcEvaporativeCoolerType ,IfcEvaporatorType ,IfcHeatExchangerType ,IfcHumidifierType ,IfcMotorConnectionType ,IfcSpaceHeaterType ,IfcTransformerType ,IfcTubeBundleType	
					[General]: chose correct type for the MEP element			IfcFlowStorageDeviceType IfcElectricFlowStorageDeviceType ,IfcTankType	
					[General]: chose correct type for the MEP element			IfcFlowTreatmentDeviceType IfcDuctSilencerType ,IfcFilterType	
		Name	Individual type name (for human reference)	required human interpretable name	[COBIE2]: reqd - Type.Name	M		IfcDistributionElementType(subtypes).Name	GSC-147
		Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description	O		IfcDistributionElementType(subtypes).Description	GSC-264
		Type	MEP type as assigned to the type	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - min one attribute worksheet "Type" row for each furnishing type	O		IfcDistributionElementType(subtypes).ElementType	GSC-284
				type enumerator specific to the subtype of IfcDistributionElementType					


exchange requirements for the "Basic HandOver to Facility Management"								IFC Model View Definition	
Object Type						Export	Import		
Attribute Groups									
Property									
Definitions and notes						MVD binding			
Examples and further explanations									
Comments									
		Material	Material as assigned to the type	OPTIONAL for "Basic FM HandOver View" material information as shown below for element materials	[General]: if a material is provided at both, IfcDistributionlement and IfcDistributionElementType, then the material at IfcDistributionElement overrides. [COBIE2]: reqd - min one attribute worksheet "Material" row for each furnishing type	O		IfcMaterial, or IfcMaterialLayerSet (through relationsip IfcRelAssociatesMaterial)	GSC-266
		Classification	Classification as assigned to the type	OPTIONAL for "Basic FM HandOver View" classification information as shown below for element classification	[General]: if a classification is provided at both, IfcDistributionElement and IfcDistributionElementType, then the classification at IfcDistributionElement overrides. [COBIE2]: see classification below	O		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-265
		Properties	Properties as assigned to the type	OPTIONAL for "Basic FM HandOver View" property set information as shown below for element properties	[General]: if a property is provided at both, IfcDistributionElement and IfcDistributionElementType, then the property at IfcDistributionElement overrides. [COBIE2]: properties of individual components that differ from type must be reported as properties of the Component.	O		IfcPropertySet (through relationship IfcRelDefinesByType and IfcDistributionElementType(subtypes) .HasPropertySets)	GSC-267
MEP Material									GSC-266
		Material	base material for MEP element	OPTIONAL for "Basic FM HandOver View"		O		IfcMaterial (through relationsip IfcRelAssociatesMaterial)	
		Material name	name of the material	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: n/a	O		IfcMaterial.Name	GSC-174
MEP Classification					[COBIE2]: see classification below				GSC-265
		Classification	FFE classification	REQUIRED for "Basic FM HandOver View" for MEP Software	[General]: In particular interesting for data exchange between CAFM	M		IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
		Classification Item Key	Key of classification item within the classification system		[COBIE2]: reqd - Space.Category first value of delimited list	M		IfcClassificationReference.ItemReference	(incl)
		Classification Item Name	Clear name of the classification item		[COBIE2]: reqd - Space.Category second value of delimited list	M		IfcClassificationReference.Name	(incl)
		Classification System Name	Name of the classification system		[COBIE2]: n/a	M		IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
		Classification System ID	Identifyer of the classification system		[COBIE2]: regional specification (Omniclass Table 23 in NA)	-		IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
MEP properties								IfcPropertySet for IfcDistributionElement(subtypes) (through relationship IfcRelDefinesByProperties)	GSC-267
		MEP Common Properties	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: object properties are assigned against Type.	M		IfcPropertySet with Name = "Pset_DistributionFlowElementCommon", or other	GSC-268
		Reference	Reference ID for this specific instance (e.g. 'WWS/VS1/400/001',	e.g. the "AKS Nummer"	[COBIE2]: optional - put in Attribute worksheet if used	M		IfcPropertySingleValue with Name = "Reference"	ATC-009


<div>exchange requirements for the "Basic HandOver to Facility Management"</div>							IFC Model View Definition		
Object Type					Export	Import			
Attribute Groups									
Property									
							IFC Model Representation	MVD binding	
Definitions and notes					Examples and further explanations				
Comments									
		MEP Manufacturer Properties	Properties that are specified in the manufacturer property definitions (or a relevant subset of)	OPTIONAL for "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: manufacturer items are evaluated only on COBie2 construction files	O		IfcPropertySet with Name = "Pset_ManufacturerTypeInformation"	GSC-269
		Article Number	Article number or reference	OPTIONAL for "Basic FM HandOver View"		O		IfcPropertySingleValue with Name = "ArticleNumber"	GSC-251
		Model Name	The name of the manufactured item as used by the manufacturer.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ModelReference"	GSC-252
		Model Number	The model number and/or unit designator assigned by the manufacturer	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.ModelNumber	O		IfcPropertySingleValue with Name = "ModelLabel"	GSC-253
		Manufacturer	The organization that manufactured and/or assembled the item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd (only construction) - Type.Manufacturer	O		IfcPropertySingleValue with Name = "Manufacturer"	GSC-254
		Year of Production	The year of production of the manufactured item.	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ProductionYear"	GSC-260
Spatial Container									GSC-026
		MEP contained in Building Story	An MEP element can be contained in a building storey, to be used ONLY, if the MEP element spans between two or more spaces	either contained in building storey, or space (exactly one of both has to be provided) - to building story shall not be included (as far as possible)	[General]: for import the ability has to be provided to accept furniture on storey [COBIE2]: Components may only be placed within specifically named spaces	N	M	IfcRelContainedInSpatialStructure with .RelatingStructure = IfcBuildingStorey, and RelatedElements=[IfcDistributionElement, other contained elements]	GSC-270
		MEP contained in Space	A MEP element is contained in a space	either contained in building storey, or space (assignment to space is required for all standard configurations)	[General]: for export the ability to assign furniture to space is essential and has to be provided [COBIE2]: reqd - Component.SpaceNames	M		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcStorey, and RelatedElements=[IfcDistributionElement, other contained elements]	GSC-271
Any other furniture, fixture and equipment				as far as it is in scope of the architectural software application, to be in scope of MEP software known semantic types have to be exchanged as subtypes of furniture or distribution element. Proxies only supported as exceptional fallbacks	[FM-10]: on export only in exceptional cases, on import a proper exception handling shall be provided. [COBIE2]: object classes must be strongly typed using the Type worksheet. Instances found in Component worksheet. All ifcTypes to be included except: IfcWallType, IfcSlabType, IfcBeamType, IfcColumnType, IfcMemberType, IfcPlateType, IfcRailingType, IfcStairFlightType, IfcCurtainWallType, IfcRampFlightType			IfcBuildingElementProxy	GSC-225
	Proxy Attributes								GSC-226
		Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f81, has to be maintained by the application (e.g. for re-export)	[General]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Component.ExtIdentifier	M		IfcBuildingElementProxy.GlobalId	VBL-170
		Name	Individual element name (for human reference)		[COBIE2]: reqd - Component.Name	M		IfcBuildingElementProxy.Name	GSC-227
		Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: reqd - Type.Description, no separate description for specific component	O		IfcBuildingElementProxy.Description	GSC-228
	Proxy Type				[COBIE2]: Type worksheet holds all COBie2 types				GSC-229

 exchange requirements for the "Basic HandOver to Facility Management"							IFC Model View Definition		
Object Type					Export	Import			
Attribute Groups		Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding	
Property									
		Proxy type name			[COBIE2]: reqd if created by external system	Type.ExtIdentifier	O	IfcBuildingElementProxy.ObjectType	GSC-285
		Proxy Type	Reference to the common FFE type used for all occurrences of the FFE	OPTIONAL for "Basic FM HandOver View"	[General]: Types are also called "style", or "family" in CAD software [COBIE2]: Type worksheet holds all COBie2 types		O	IfcBuildingElementProxyType (and subtypes) (through relationship IfcRelDefinesByType)	GSC-231
		Name	Individual type name (for human reference)		[COBIE2]: reqd - Type.Name		O	IfcBuildingElementProxyType(subtypes).Name	GSC-230
		Description	Additional description		[COBIE2]: reqd - Type.Description		O	IfcBuildingElementProxyType(subtypes).Description	GSC-272
		Type	FFE type as assigned to the type		[COBIE2]: reqd - min one attribute worksheet "Type" row for each furnishing type		O	IfcBuildingElementProxyType(subtypes).ElementType	GSC-286
		Material	Material as assigned to the type	material information as shown below for element materials	[General]: if a material is provided at both, IfcBuildingElementProxy and IfcBuildingElementProxyType, then the material at IfcBuildingElementProxy overrides. [COBIE2]: reqd - min one attribute worksheet "Material" row for each furnishing type		O	IfcMaterial, or IfcMaterialLayerSet (through relationship IfcRelAssociatesMaterial)	GSC-232
		Classification	Classification as assigned to the type	classification information as shown below for element classification	[General]: if a classification is provided at both, IfcBuildingElementProxy and IfcBuildingElementProxyType, then the classification at IfcBuildingElementProxy overrides. [COBIE2]: see classification below		O	IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-233
		Properties	Properties as assigned to the type	property set information as shown below for element properties	[General]: if a property is provided at both, IfcBuildingElementProxy and IfcBuildingElementProxyType, then the property at IfcBuildingElementProxy overrides. [COBIE2]: properties of individual components that differ from type must be reported as properties of the Component.		O	IfcPropertySet (through relationship IfcRelDefinesByType and IfcDistributionElementType(subtypes).HasPropertySets)	GSC-234
Proxy Material									GSC-232
		Material	base material for FFE	OPTIONAL for "Basic FM HandOver View"			O	IfcMaterial (through relationship IfcRelAssociatesMaterial)	
		Material name	name of the material	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: n/a		O	IfcMaterial.Name	GSC-174
Proxy Classification									GSC-233
		Classification	Proxy classification	USED for "Basic FM HandOver View", requires to specify a classification system	[General]: In particular interesting for data exchange between CAFM		M	IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
		Classification Item Key	Key of classification item within the classification system		[COBIE2]: reqd - Space.Category first value of delimited list		M	IfcClassificationReference.ItemReference	(incl)
		Classification Item Name	Clear name of the classification item		[COBIE2]: reqd - Space.Category second value of delimited list		M	IfcClassificationReference.Name	(incl)
		Classification System Name	Name of the classification system		[COBIE2]: n/a		M	IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
		Classification System ID	Identifyer of the classification system		[COBIE2]: regional specification (Omniclass Table 23 in NA)		-	IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)

<div>exchange requirements for the "Basic HandOver to Facility Management"</div>							IFC Model View Definition	
Object Type					Export	Import		
Attribute Groups		Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding
Property								
	Proxy properties							GSC-234
		Proxy Common Properies	Properties that are specified in the standard property definitions (or a relevant subset of)	OPTIONAL for "Basic FM HandOver View"	[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: object properties are assigned against Type.	O		IfcPropertySet with Name = "Pset_BuildingElementProxyCommon", or other GSC-235
		Reference	Reference ID for this specific instance (e.g. 'WWS/VS1/400/001',	e.g. the "AKS Nummer"	[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "Reference" ATC-009
		Proxy Manufacturer Properties	Properties that are specified in the manufacturer property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: manufacturer items are evaluated only on COBie2 construction files	O		IfcPropertySet with Name = "Pset_ManufacturerTypeInformation" GSC-273
		Article Number	Article number or reference			O		IfcPropertySingleValue with Name = "ArticleNumber" GSC-251
		Model Name	The name of the manufactured item as used by the manufacturer.		[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ModelReference" GSC-252
		Model Number	The model number and/or unit designator assigned by the manufacturer		[COBIE2]: reqd (construction) - Type.ModelNumber	O		IfcPropertySingleValue with Name = "ModelLabel" GSC-253
		Manufacturer	The organization that manufactured and/or assembled the item.		[COBIE2]: reqd (construction) - Type.Manufacturer	O		IfcPropertySingleValue with Name = "Manufacturer" GSC-254
		Year of Production	The year of production of the manufactured item.		[COBIE2]: optional - put in Attribute worksheet if used	O		IfcPropertySingleValue with Name = "ProductionYear" GSC-260
	Spatial Container							GSC-026
		Proxy contained in Building Story	An proxy can be contained in a building storey	either contained in building storey, or space (exactly one of both has to be provided) - to building story shall not be included (as far as possible)	[General]: for import the ability has to be provided to accept furniture on storey [COBIE2]: Components may only be placed within specifically named spaces	N	M	IfcRelContainedInSpatialStructure with .RelatingStructure = IfcBuildingStorey, and RelatedElements=[IfcBuildingElementProxy, other contained elements] GSC-236
		Proxy contained in Space	A proxy can be contained in a space	either contained in building storey, or space (assignment to space is required for all standard configurations)	[General]: for export the ability to assign furniture to space is essential and has to be provided [COBIE2]: reqd - Component.SpaceNames	M		IfcRelContainedInSpatialStructure with .RelatingStructure = IfcStorey, and RelatedElements=[IfcBuildingElementProxy, other contained elements] GSC-237

 <i>exchange requirements for the "Basic HandOver to Facility Management"</i>						<i>IFC Model View Definition</i>	
Object Type				Export	Import		
Attribute Groups							
Property	Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding
Zone as a logical grouping of spaces						IfcZone	VBL-270
		if in scope of the architectural software	[COBIE2]: zones are rquired in COBie2 files. Zones defined shared space functionality.				
	Zone Attributes						ICC-239
	Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f81, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Zone.ExtIdentifier	M	IfcZone.GlobalId	VBL-170
	Name	Individual element name (for human reference)		[COBIE2]: reqd - Zone.Name	M	IfcZone.Name	ICC-240
	Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: n/a	O	IfcZone.Description	GSC-248
	Zone Classification						GSC-249
	Classification	Zone classification	OPTIONAL for "Basic FM HandOver View", requires to specify a classification system	[General]: In particular interesting for data exchange between CAFM	O	IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
	Classification Item Key	Key of classification item within the classification system		[COBIE2]: Primary key for zoning is Zone.Name and Zone.Category	O	IfcClassificationReference.ItemReference	(incl)
	Classification Item Name	Clear name of the classification item		[COBIE2]: reqd - Zone.Category Default values: Circulation, Lighting, Fire, Historical, Occupancy, Ventilation	O	IfcClassificationReference.Name	(incl)
	Classification System Name	Name of the classification system		[COBIE2]: n/a	O	IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
	Classification System ID	Identifyer of the classification system		[COBIE2]: Classification system self-defined within COBie2 pick lists.	-	IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
	Zone properties						GSC-249
	Zone Common Properties	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: n/a	O	IfcPropertySet with Name = "Pset_ZoneCommon"	GSC-244
	Reference	Reference ID for this specific instance (e.g. 'WWS/VS1/400/001',		[COBIE2]: n/a	O	IfcPropertySingleValue with Name = "Reference"	ATC-009
	Spatial Zone Assignment						ICC-243
	Grouping of system components						
	Spaces assigned to zone	Assignement of individual spaces that belong to the zone for organizational or other purposes	e.g. assigning all spaces to a flat, or to an office unit.	[COBIE2]: reqd - Zone.SpaceNames	M	IfcRelAssignsToGroup with .RelatingGroup = IfcZone, and .RelatedObjects = all IfcSpace's belonging to the zone	GSC-050
	Sub zones assigned to zone	Assignment of sub zone to a parent zone	e.g. assigning the high security zone to the general security zone		O	IfcRelAssignsToGroup with .RelatingGroup = IfcSystem, and .RelatedObjects = IfcZone (the sub zone)	

 <i>exchange requirements for the "Basic HandOver to Facility Management"</i>						<i>IFC Model View Definition</i>	
Object Type				Export	Import		
Attribute Groups							
Property	Definitions and notes	Examples and further explanations	Comments			IFC Model Representation	MVD binding
System as a logical grouping of elements		as far as it is in scope of the architectural software application, to be in scope of MEP software	[COBIE2]: systems are required in COBie2 files. Systems define shared component functionality			IfcSystem	VBL-269
<i>System Attributes</i>							GSC-079
	Software unique id	Object identifier (formatted as GUID or UUID) to uniquely identify the software object	70ce2f2b-a5f8-4ab7-bc7f-6a838a353f81, has to be maintained by the application (e.g. for re-export)	[FM-10]: software key, does not yield any human interpretation [COBIE2]: reqd if created by external system Zone.ExtIdentifier	M	IfcSystem.GlobalId	VBL-170
	Name	Individual element name (for human reference)		[COBIE2]: reqd - Zone.Name	M	IfcSystem.Name	GSC-094
	Description	Additional description	OPTIONAL for "Basic FM HandOver View"	[COBIE2]: n/a	O	IfcSystem.Description	ICC-500
<i>System Classification</i>							GSC-096
	Classification	System classification	REQUIRED for "Basic FM HandOver View" for MEP Software	[General]: In particular interesting for data exchange between CAFM	M/O	IfcClassificationReference (through relationship IfcRelAssociatesClassification)	GSC-036
	Classification Item Key	Key of classification item within the classification system		[COBIE2]: reqd - Space.Category first value of delimited list	M/O	IfcClassificationReference.ItemReference	(incl)
	Classification Item Name	Clear name of the classification item		[COBIE2]: reqd - Space.Category second value of delimited list	M/O	IfcClassificationReference.Name	(incl)
	Classification System Name	Name of the classification system		[COBIE2]: n/a	M/O	IfcClassification.Name (through IfcClassificationReference.ReferencedSource)	(incl)
	Classification System ID	Identifier of the classification system		[COBIE2]: regional specification (Omniclass Table 21 in NA)	-	IfcClassification.Source (through IfcClassificationReference.ReferencedSource)	(incl)
<i>System properties</i>							GSC-100
	System Common Properties	Properties that are specified in the standard property definitions (or a relevant subset of)		[General]: relevant subset of required properties need to be defined out of the standard properties [COBIE2]: n/a	O	IfcPropertySet with Name = "Pset_ZoneCommon"	GSC-120
	Reference	Reference ID for this specific instance (e.g. 'WWS/VS1/400/001',	e.g. the "AKS Nummer"	[COBIE2]: n/a	O	IfcPropertySingleValue with Name = "Reference"	ATC-009
<i>Component System Assignment</i>							GSC-121
	Grouping of system components						
	Components assigned to system	Assignment of individual components that belong to the MEP system	e.g. assigning all MEP components belonging to a heating system, or a cold water system. Systems can have sub-systems.	[COBIE2]: reqd - System.ComponentNames	M	IfcRelAssignsToGroup with .RelatingGroup = IfcSystem, and .RelatedObjects = all components (subtypes of IfcDistributionElement) belonging to the system, or IfcSystem's being sub-systems	GSC-132
	Sub systems assigned to system	Assignment of sub systems to a parent system	e.g. assigning the left wing heating system to the building heating system		O	IfcRelAssignsToGroup with .RelatingGroup = IfcSystem, and .RelatedObjects = IfcSystem (the sub system)	
<i>System Services Buildings</i>							VBL-163
	System assigned to building structure	Assignment of the system to the level of the building structure, it serves				IfcRelAssignsToGroup with .RelatingGroup = IfcSystem, and .RelatedBuildings = levels of the building structure	GSC-133

 <i>exchange requirements for the "Basic HandOver to Facility Management"</i>								<i>IFC Model View Definition</i>			
Object Type						Export	Import	IFC Model Representation		MVD binding	
Attribute Groups											
Property		Definitions and notes	Examples and further explanations	Comments							
		System assigned to story		<i>e.g. a horizontal system only serving one or several building stories</i>	<i>[COBIE2]: location of systems inferred from Component.SpaceNames referenced within System.ComponentNames</i>			M/O		with .RelatedBuildings = [1...n] IfcBuildingStorey	GSC-175
		System assigned to building		<i>e.g. a vertical system serving a whole building or building section</i>	<i>[COBIE2]: one building allowed per COBie2 file</i>			M/O		with .RelatedBuildings = [1...n] IfcBuilding	GSC-176
		System assigned to site		<i>e.g. an MEP system for delivering services on the site to the building</i>				M/O		with .RelatedBuildings = [1...1] IfcSite	

Legend											
Property in black			required for "Basic FM Handover View"	see further explanations for restrictions, e.g only for MEP software, etc	a required property should be exported by the application, if provided as part of the data set by the user (e.g. by a property configuration, etc.). A required property should be imported. when part of the IFC data set.			M	M	M/O = one alternative is mandatory	
<i>Property in grey and italics</i>			OPTIONAL for "Basic FM Handover View"	see further explanations for restrictions, e.g REQUIRED for MEP software, CAFM, etc				O	O	M/O = one alternative is mandatory	
Property in grey italic and strike through			NOT USED for "Basic FM Handover View"					-	-		
Property in red and strike through			NOT ALLOWED for "Basic FM Handover View"	it is illegal to export such a property as part of the "Basic FM Handover View"				N	N		